

for patients with lung cancer associated with synthetic mineral fiber exposure. Malignant mesothelioma has not been linked to such exposure.

Excess lung cancers in these studies appear concentrated in groups that began working in the industry before protective measures, such as dust suppression, were widely introduced, which probably have significantly reduced exposure for contemporary workers. If the potential of these fibers to cause lung cancer is dose-related, as is the case for asbestos, then it is likely that less risk accrues to today's workers and that the danger to homeowners with attic insulation of synthetic mineral fiber is negligible. Measures to minimize exposure should be consistently and conscientiously applied, however, to avoid the tragic health and economic consequences associated with occupational exposures to asbestos.

STEPHEN A. MCCURDY, MD, MPH
Sacramento, California

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Preplacement Medical Examinations—Update

THE PREPLACEMENT MEDICAL EXAMINATION provides physicians with an opportunity to make an assessment of a job applicant's health risks through an examination of that person's past and present state of health. Federal regulations mandate that all employment medical recommendations be job-related. There has been a 10.5% increase in preplacement medical examinations throughout the country since 1975. Research examining their use has found that only 25% of the physicians who do these examinations have ever visited work sites to become familiar with the jobs. A large minority do not even refer to the job descriptions before making employment recommendations. A reluctance to address the "job-relatedness" of the medical evaluation places both the reliability and validity of these recommendations in question.

Although all decisions regarding employment recommendations require a thorough evaluation, making employment recommendations is extremely difficult when applicants have preexisting medical conditions that could affect their ability to safely do a job that is physically demanding. For these types of jobs, preplacement medical examinations are largely directed at detecting problems associated with the low back because those who have had one incidence of low-back pain are likely to have another. Additional studies have shown that a low cardiovascular fitness level is a risk factor for chronic back pain and can be detected during the examination.

If preplacement medical examinations are used as employment selection tools, they must conform to the federal regulations that mandate that employment selection procedures be based on job-related criteria. It is the burden of an employer to show that the medical standards used are indeed job-related. The burden this places on physicians is one of making an "informed" decision, which requires knowledge

of specific tasks that will be required of a job applicant. This information is often synoptically presented in the job description and class specification, but the generality of these documents may be of limited value to a physician in making appropriate recommendations. The alternative is to evaluate an applicant using job-related information that has been collected through analyzing the most physically demanding or hazardous and essential tasks within a specific job. This information allows the physician to base the recommendation on an evaluation of the applicant's medical condition as it relates to the minimum physical abilities required to safely do the job.

An effective resolution of problems associated with the preplacement examination may require a comprehensive program consisting of strength and fitness testing and a medical examination developed on a job-related basis. Many public and private organizations currently meet these criteria. Though empirically unproved, these programs have a good potential for decreasing the incidence of job-related injuries and illnesses that may be caused by improper placements in various positions.

PETER P. GREANEY, MD
DAVID J. DAMICO, MA
Irvine, California

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What We Have Learned From Chernobyl

THE CHERNOBYL DISASTER of April 26, 1986, tested the ability of the Soviet medical system to provide emergency medical care in a civilian nuclear disaster of unprecedented scope. Within 12 hours, medical "brigades" composed of about 3,000 physicians and 2,400 nurses, paramedics, and laboratory technicians had been transported to the nuclear reactor village from as far away as Moscow (640 km [400 mi]) and beyond. The on-site medical emergency team was sorting out those firefighters who required hospital admission within 15 minutes of the explosion. By four hours, 108 of 204 of the firefighters were admitted to hospitals. By the end of two days, more than 350 victims of acute radiation sickness had been evaluated, medical charts assembled, and 1,000 leukocyte counts and differentials done to estimate radiation doses. Ultimately 203 seriously irradiated—> 199 rads—and thermally burned patients were admitted to hospitals in Moscow (129 patients) and Kiev (74 patients).

Despite state-of-the-art therapy that included bone marrow transplantation, 27 of 42 patients—19 patients with more than 600 rads total-body radiation dose and 23 patients with 400 to 600 rads total-body dose—died in hospital. (Two reactor operators died or were lost within six hours of the blast.) Of 171 patients with acute radiation sickness of less severity—dose estimates 100 to 400 rads—none died. All deaths were associated with severe thermal and β -radiation burns of the skin and upper respiratory system, injuries that are known from experiments in animals to enhance the lethality of otherwise tolerable radiation exposures. The rapid identification made under austere conditions of 203 among 24,000 persons exposed to clinically significant levels of total-body irradiation who required hospital admission and the